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(21)Application number : 2001-175922 (71)Applicant : FUJI XEROX CO LTD

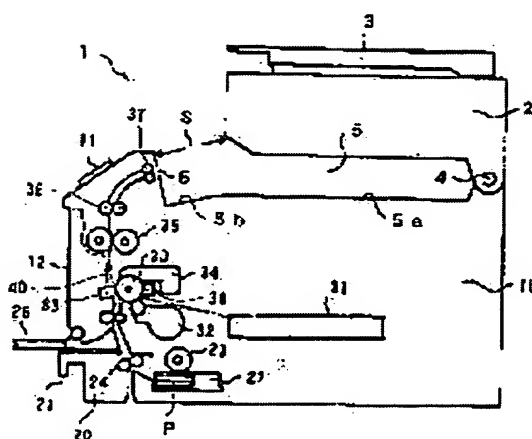
(22)Date of filing : 17.01.1992 (72)Inventor : MINEZAKI SATORU

(54) IMAGE FORMING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To facilitate removing work of recording paper ejected to a recording paper ejection part, while reducing the installation space of a device.

SOLUTION: This device is equipped with a recording paper preparing part 10 in which an image forming part is arranged, an image read part 2 provided above the preparing part 10 via space, a supporting means for raising the reading part 2 upward and supporting it, so as to form the recording paper ejection part 5 in which the recording paper ejected from the preparing part 10 is housed between the preparing part 10 and the reading part 2, and a paper housing device 22 provided below the image forming part 2 and constituted to be inserted into a device body. The ejection part 5 is equipped with an opening part, opened to take out the recording paper, and the opening part is opened by at least two adjacent side surfaces and one side surface of the two side surfaces which is opened to the inserting direction side of the paper housing means, in a state where the preparing part 10 and the read part 2 are arranged at a recording operation feasible position.



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CLAIMS

[Claim(s)]

[Claim 1] While reading the manuscript in the condition of the image formation section which forms an image in a form and is used as the recording paper having been prepared above the recording paper creation section arranged inside and said recording paper creation section through space, and having fixed horizontally in the original-cover section So that the recording paper discharge section which holds the recording paper discharged from the recording paper creation section between the image read station which changes the read image information into a digital signal, and supplies said image formation section, and said recording paper creation section and image read station may be formed The support means which raises the inferior-surface-of-tongue frame of an image read station up, and supports it to the top-face frame of said recording paper creation section, Said image formation section is prepared caudad and it has the form hold means constituted possible [insertion] to the body of equipment. In said recording paper discharge section Make the open section wide opened for recording paper ejection provide, and this open section is wide opened on two side faces which adjoin each other at least. And it is image formation equipment characterized by what one side face is wide opened for at the path-of-insertion side of said form hold means in the condition that said recording paper creation section and an image read station are stationed in the location in which record actuation is possible among these two side faces.

[Claim 2] Image formation equipment characterized by forming the open section for recording paper ejection by the inferior-surface-of-tongue frame of said image read station, and the top-face frame of said recording paper creation section in image formation equipment according to claim 1.

[Claim 3] It is image formation equipment characterized by being that to which said recording paper discharge section discharges the recording paper on the top-face frame of said recording paper creation section in image formation equipment according to claim 1.

[Claim 4] It is image formation equipment characterized by for said open section continuing throughout the abbreviation for the top-face frame of the recording paper creation section in image formation equipment according to claim 1, and being opened wide.

[Claim 5] It is image formation equipment characterized by preparing said support means in the top-face frame of said recording paper creation section in image formation equipment according to claim 1.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the image formation equipment of a digital method, and relates to amelioration of the image formation equipment which has arranged the recording paper discharge section between an image read station and the image formation section especially.

[0002]

[Description of the Prior Art] As image formation equipment of the digital method in the former, the recording paper discharge section is prepared, for example above the recording paper creation sections, such as an electrophotography method, and the mode which arranged the manuscript migration mold image read station above this recording paper discharge section is already known further (for example, refer to JP,3-120125,A). According to this mode, compared with the mode (for example, refer to JP,62-131668,A) which has projected and arranged the discharge tray as the recording paper discharge section to the side of the body of equipment, there is an advantage that the installation tooth space of equipment can be reduced.

[0003]

[Problem(s) to be Solved by the Invention] However, if it was in this kind of image formation equipment, since the recording paper was discharged in the recording paper discharge section prepared between the recording paper creation section and an image read station, the technical problem that the ejection activity over the recording paper discharged by the recording paper discharge section tends to become troublesome was found out.

[0004] This invention offers the image formation equipment which did easy the drawing activity over the recording paper discharged by the recording paper discharge section, aiming at [are made in order to solve the above technical technical problem, and] reduction of the installation tooth space of equipment.

[0005]

[Means for Solving the Problem] Namely, while this invention reads the manuscript in the condition of the image formation section which forms an image in a form and is used as the recording paper having been prepared above the recording paper creation section arranged inside and said recording paper creation section through space, and having fixed horizontally in the original-cover section So that the recording paper discharge section which holds the recording paper discharged from the recording paper creation section between the image read station which changes the read image information into a digital signal, and supplies said image formation section, and said recording paper creation section and image read station may be formed The support means which raises the inferior-surface-of-tongue frame of an image read station up, and supports it to the top-face frame of said recording paper creation section, Said image formation section is prepared caudad and it has the form hold means constituted possible [insertion] to the body of equipment. In said recording paper discharge section Make the open section wide opened for recording paper ejection provide, and this open section is wide opened on two side faces which adjoin each other at least. And it is characterized by what one side face is wide opened for among these two side faces at the path-of-insertion side of said form hold means in the condition that said recording paper creation section and an image read station are stationed in the location in which record actuation is possible.

[0006] When supplemented about a support means in such technical means, it is [0008] of the gestalt

of for example, operation. it can be alike and can set -- "-- said image read station 2 supports through a hinge 4 again to the detail-paper creation section 10 arranged at the lower part -- having -- **** -- " -- as in a publication, and drawing 1 and drawing 2 The heights extended from the top-face frame of the recording paper creation section 10 to the upper part, the heights caudad extended from the inferior-surface-of-tongue frame of the image read station 2, And the hinge 4 equivalent to a "support means" with which said two heights are made to connect is clear, and it sets to drawing 5 . It is clear that the part's prolonged in the vertical direction in the both sides of the recording paper discharge section 5 of image formation equipment separate space from the recording paper creation section 10, are supporting the image read station 2 up, and it is equivalent to a "support means." Moreover, although what is necessary is just to provide the open section for the recording paper ejection opened wide at the path-of-insertion side of said form hold means in the recording paper discharge section, the open direction of the open section which can be set in this case is subject [to being in the condition arranged in the location which said recording paper creation section and an image read station can record operate to the last]. The "condition that said recording paper creation section and an image read station are stationed in the location in which record actuation is possible" here is in the condition that for example, the image read station has been stationed like drawing 2 or drawing 4 in the thing in which impaction efficiency is possible in the location which an image read station can record operate, for example, an image read station points out the condition in drawing 5 in the thing of location immobilization.

[0007] Furthermore, if it carries out from a viewpoint of attaining simplification of the configuration of image formation equipment, it is desirable to form the open section for recording paper ejection by the inferior-surface-of-tongue frame of said image read station and the top-face frame of said recording paper creation section, or to discharge the recording paper on the top-face frame of said recording paper creation section as the recording paper discharge section. Furthermore, if the top-face frame of the recording paper creation section is carried out from a viewpoint of using effectively again, as for said open section, it is desirable to continue throughout the abbreviation for the top-face frame of the recording paper creation section, and to be opened wide. Moreover, if a support means is prepared in the top face of the recording paper creation section, the miniaturization of a support means can be attained.

[0008]

[Embodiment of the Invention] The image formation equipment of this invention is explained according to the gestalt of the operation illustrated. The image formation equipment 1 concerning the gestalt of this operation is constituted as equipment in the condition of having piled up the image read station 2 and the recording paper creation section 10, forms the recording paper discharge section 5 among both equipments, and he is trying to make the recording paper discharge, as shown in drawing 1 . In said image read station 2, like the case of a common image reader, a manuscript is set to the upper part of the body of equipment, the device which scans the image of a manuscript is established, and the platen covering 3 for carrying out press maintenance of the manuscript is formed. Moreover, said image read station 2 is supported through the hinge 4 to the detail-paper creation section 10 arranged at the lower part, turns the image read station 2 back, and enables it to make it rocked through this hinge 4.

[0009] It is made for the detail paper creation section 10 arranged at the lower part of said image read station 2 to have the jam paper in the maintenance to each internal device , and the form conveyance way 40 within the body of equipment processed by constituting the front frame 12 side of the body of equipment possible [closing motion] through a hinge 13 , and opening this front frame 12 . Moreover, the opening 15 for inserting the feed unit 20 in said front frame 12 is formed, and it is constituted so that the feed unit 20 can be detached and attached from said opening 15. Furthermore, a control panel 11 can be arranged to the position of said recording paper creation section 10, and actuation with the image read station 2 and the recording paper creation section 10 can be controlled.

[0010] In the image formation equipment 1 concerning the gestalt of this operation mentioned above, as shown in drawing 2 and drawing 3 , the recording paper creation section 10 can be constituted. That is, in the image formation section arranged inside said recording paper creation section 10, like the case of a general laser beam printer, it writes in to the photo conductor drum 30, and equipment

31 is arranged, and a laser beam is made to output, the laser beam is irradiated at the photo conductor drum 30, and it is made to write in an image with the digital signal inputted from the image read station 2. Moreover, around said photo conductor drum 30, the electrification machine 38, a developer 32 and the imprint corotron 33, and cleaning equipment 34 are arranged like the case of the image formation device which used the electrophotography method. And the photo conductor drum 30 is uniformly electrified with the electrification vessel 38, it writes in with write-in equipment 31, and an electrostatic latent image is formed, a toner is supplied from a developer 32 to the electrostatic latent image, a toner image is formed, and it is made to make a form imprint the toner image by discharge of the imprint corotron 33.

[0011] In order to send a form towards said image formation section, in said recording paper creation section 10, the method which equips the lower part of the body of equipment with the feed unit 20 is used, a handle 21 is arranged to a before [said feed unit 20] side, and form hold equipment 22 is equipped with Form P. Moreover, conveyance roller equipment 24 is arranged into the part connected to the form feed hopper located in the lower limit of the form conveyance way 40 within the body of equipment, and the form P sent out with the feed roller 23 is turned to the form conveyance way 40 of the body of equipment, and it is made to make it convey to said feed unit 20. It connects with the support means and drive which omitted illustration, and it is in the condition which equipped the recording paper creation section 10 with form hold equipment 22, the feed roller 23 is pressed by the edge of Form P, and the feed roller 23 for sending out Form P from said form hold equipment 22 may have the send of Form P be made to be operated.

[0012] In addition, the equipment of the configuration of arbitration can be used as said form hold equipment 22, and the means made to act only as form hold equipment can also be used besides the device which formed conveyance roller equipment 24 in the sheet paper cassette like [in the case of the conventional general sheet paper cassette or a medium tray]. Furthermore, in the recording paper creation section 10, a detachable tray 26 can be arranged in the front section of the body of equipment other than the feed means by said feed unit 20, and Form P can be turned and sent into the form conveyance way 40 using the feed roller 27.

[0013] Furthermore, the anchorage device 35 is formed in the form conveyance way 40 located in the downstream of the imprint part of the image formation section, conveyance roller equipment 36 and the discharge roller 37 are formed in the form conveyance way 40 of this anchorage device 35 further located in the downstream, and the upper limit of the form conveyance way 40 has become the recording paper exhaust port 6. Conveyance roller equipment 36, the discharge roller 37, and the recording paper exhaust port 6 constitute the recording paper discharge means of this invention from this example.

[0014] In the example shown in said drawing 2 moreover, between the image read station 2 and the recording paper creation section 10 The space section used as the recording paper discharge section 5 is formed. With the gestalt of this operation From said image read station 2, said recording paper discharge section 5 projects, and is arranged, and this recording paper discharge section 5 is received. A hand is inserted from the part of the tooth space S formed in a front-side, and the open section which in other words was formed in the path of insertion of said feed unit 20, and it enables it to take out the recording paper between the image read station 2 and the recording paper creation section 10. As shown in said drawing 1 , when it constitutes in the gestalt of this operation especially as a device to which opening of the part of the recording paper discharge section 5 was made to carry out in a flank, i.e., the direction which goes to the path of insertion of said feed unit 20 direct, the recording paper can be taken out also from the flank of the body of equipment. furthermore, the part of said tooth space S is constituted as a tooth space which leads even to a front-side from the rear-side of the body of equipment -- having -- **** -- said tooth space S -- receiving -- right and left of the body of equipment -- either can also insert a hand and can take out the recording paper.

[0015] Furthermore, with the gestalt of this operation, as shown in drawing 1 and drawing 2 , said recording paper discharge section 5 has recording paper installation side 5a, and forms in the recording paper exhaust port 6 side of this recording paper installation side 5a concave 5b of the letter of the abbreviation for V characters which consists of other parts low.

[0016] As it mentioned above, the form P sent out towards the form conveyance way 40 within the body of equipment of the feed section (the feed unit 20 or detachable tray 26) to the recording paper

creation section 10 doubles the timing of the point of Form P, and the toner image formed in the photo conductor drum 30, and is sent out by REJIORA 25 arranged at the direct anterior part of the image imprint section (imprint corotron 33) from the photo conductor drum 30. And by discharge of the imprint corotron 33, a toner image is imprinted in Form P, the form P which supports the toner image is established through an anchorage device 35, the recording paper is created, and it is made to make it discharge towards the recording paper discharge section 5 through conveyance roller equipment 36 and the discharge roller 37 from the recording paper exhaust port 6.

[0017] And although sequential installation of the recording paper discharged by the recording paper discharge section 5 is carried out at recording paper installation side 5a Since concave 5b of the letter of the abbreviation for V characters is formed in the recording paper exhaust port 6 side among recording paper installation side 5a, the discharge back end section of the recording paper moves to said concave 5b side automatically by self-weight, and where the discharge back end section of the recording paper is arranged with concave 5b, the recording paper is held in the recording paper discharge section 5. For this reason, a hand can be inserted from the part of the tooth space S formed in a front-side, and the recording paper can be taken out easily. It is also possible to take out the recording paper more simply in the gestalt of this operation, especially, since the open section for recording paper ejection was formed not only in a front-side but in the flank.

[0018] Moreover, the member of the front-side of the form conveyance way 40 is prepared in the front frame 12, and it is made to constitute from the recording paper creation section 10 shown in said drawing 3 so that this front frame 12 may be opened from the body of equipment. And as mentioned above, when performing processing when a jam arises in the form conveyance way 40 by constituting possible [closing motion of the front frame 12 of the body of equipment], and the maintenance to each device of image formation equipment, an activity can be done from the front-side of equipment. Furthermore, by constituting the device which pulls out each configuration member arranged inside the recording paper creation section 10 to a front-side, members, such as it, can be pulled out outside the plane and check etc. can also be performed.

[0019] Moreover, as shown in said drawing 1 , to the recording paper discharge section 5 which holds the recording paper, a hand can be inserted from a front-side and a both-sides flank, and it can replace with constituting so that the recording paper can be taken out, and can constitute from a gestalt of other operations of this invention as equipment as shown in drawing 4 . It starts to the flank of the both sides of the recording paper creation section 10, the sections 7 and 8 are arranged, the recording paper exhaust port 6 is formed in the standup section 7 of one of these, the recording paper created in the recording paper creation section 10 is turned to the recording paper discharge section 5, and it is made to make it discharge in image formation equipment 1a shown in said drawing 4 . Moreover, the image read station 2 supported by the upper part of the recording paper creation section 10 constitutes as equipment which turns and outputs the information which scanned the manuscript as well as the case of the equipment shown in said drawing 1 to the recording paper creation section 10 as digital information.

[0020] And also in image formation equipment 1a shown in said drawing 4 , the device in which a rear-side is made to rock the image read station 2 through a hinge 4 can be established, and it can constitute possible [closing motion of the front frame 12]. Moreover, it is also possible to be able to prepare the insertion opening 15 grade of a control panel 11 and the feed unit 20 in the front-side of said recording paper creation section 10, and to arrange a detachable tray etc. to the front frame 12 to it if needed. Therefore, also in the example shown in said drawing 4 , a maintenance etc. can be performed from the front-side of equipment to each device of the electrophotography method arranged inside the recording paper creation section 10.

[0021] Moreover, the image formation equipment of this invention as shown in drawing 5 with the gestalt of other operations can also be constituted further. In image formation equipment 1b shown in said drawing 5 , in the upper part of the body of equipment containing the detail-paper creation section 10, press maintenance of the manuscript was carried out with the platen covering 3, and the image read station 2 which performs read of an image is stationed. Moreover, opening of the recording paper discharge section 5 is prepared in the lower part of said image read station 2. Furthermore, the lower part of the body of equipment is equipped with the feed unit 20, it lets the form conveyance way which has arranged the form to the flank of the body of equipment pass, and

the toner image formed in the photo conductor drum is imprinted in a form, and it is established through an anchorage device and made to make the recording paper discharge section 5 discharge the form which supports the toner image.

[0022] In case the closing motion frame 12 is opened and closed, and processing of a jam etc. is performed when a form conveyance way and the image formation section have been arranged to the flank of the body of equipment as shown in said drawing 5 , jam processing and the maintenance of equipment can be performed only from the transverse plane of equipment like the image formation equipment shown in said drawing 1 or drawing 4 . However, the tooth space where image formation equipment occupies a discharge tray as compared with the image formation equipment which makes a flank project can be made small by constituting image formation equipment 1b, as shown in said drawing 5 . Furthermore, since it can constitute comparatively small, said image formation equipment 1b is image formation equipments, such as a copying machine, and when a jam is generated on a form conveyance way or it performs the maintenance to equipment, it can also perform moving this equipment easily. Therefore, when opening the closing motion frame 12 arranged to the flank of the body of equipment, even if there is inconvenient [some], in the state of anticipated use, it does not become a big problem.

[0023] As shown in said drawing 1 or drawing 5 , the recording paper discharge section 5 can be arranged in the center section of image formation equipment, and the image formation equipment which constitutes and becomes so that ejection of the recording paper can be performed from a front-side to this recording paper discharge section 5 can be used also as the laser beam printer using the digital function other than using as an electronic copying machine, or facsimile. if it establishes the device of for example, an electronic copying machine and facsimile in which a manuscript is automatically sent to the image read station 2 in constituting the equipment which compounded the function -- the case of common facsimile -- the same -- many -- the function to transmit the manuscript of several sheets continuously can be given. Furthermore, when establishing attachment with equipments, such as a computer, to said compound machine, it can be used also as a laser beam printer. And even when the image formation equipment which gave such various functions has been arranged in the condition of having made it close to a computer or other equipments, the recording paper can be taken out from a front-side and the activity of a maintenance of equipment can also be done only from a front-side.

[0024]

[Effect of the Invention] In the image formation equipment which has a manuscript cover-half image read station according to this invention as stated above While the image formation section flatters and supports said image read station by the support means above the recording paper creation section arranged inside and prepares the recording paper discharge section between the record material creation section and an image read station The form hold means constituted possible [insertion] to the body of equipment is formed in the lower part of the image formation section. In the recording paper discharge section The open section wide opened for recording paper ejection is made to provide. As this open section Since it was made to open to the path-of-insertion side of said form hold means in the condition that open wide on two side faces which adjoin each other at least, and said recording paper creation section and an image read station are stationed about one side face among these two side faces in the location in which record actuation is possible While being able to aim at reduction of an equipment installation tooth space, securing the degree of freedom which forms a manuscript cover-half image read station, the recording paper creation section, and the recording paper discharge section, the feed activity which supplies the ejection activity of the recording paper from the recording paper discharge section and a form can be done good.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing one gestalt of operation of the image formation equipment with which this invention was applied.

[Drawing 2] It is the side elevation showing the configuration of the image formation equipment concerning the gestalt of operation.

[Drawing 3] It is the expansion explanatory view showing the configuration of the recording paper creation section concerning the gestalt of operation.

[Drawing 4] It is the perspective view showing the gestalt of other operations of the image formation equipment with which this invention was applied.

[Drawing 5] It is the perspective view showing the gestalt of still more nearly another operation of the image formation equipment with which this invention was applied.

[Description of Notations]

1 [-- The recording paper discharge section 6 / -- A recording paper exhaust port, 10 / -- The recording paper creation section, 11 / -- A control panel, 12 / -- A front frame, a closing motion frame, 20 / -- A feed unit, 23 / -- A feed roller, 26 / -- A detachable tray, 30 / -- A photo conductor drum, 31 / -- Write-in equipment, 32 / -- A developer, 35 / -- Anchorage device] -- Image formation equipment, 2 -- An image read station, 4 -- A hinge, 5

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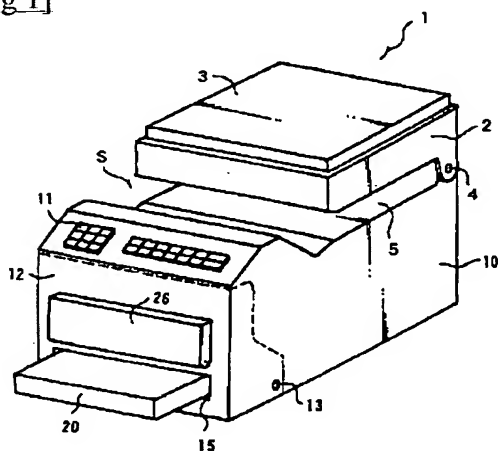
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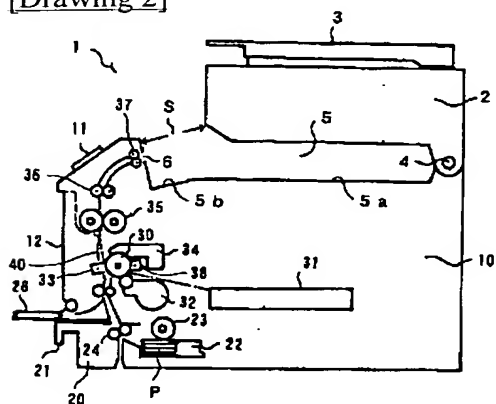
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DRAWINGS

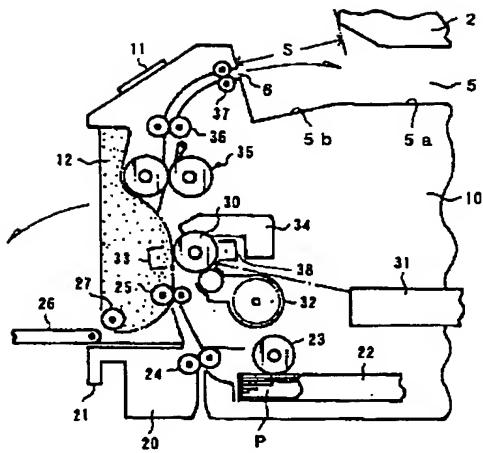
[Drawing 1]



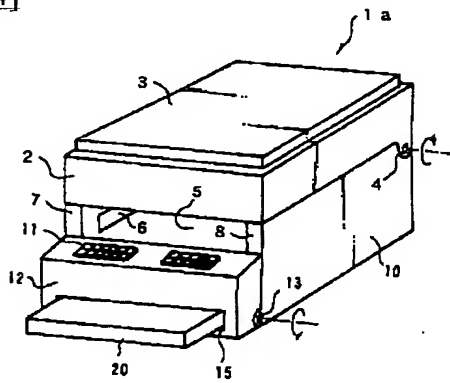
[Drawing 2]



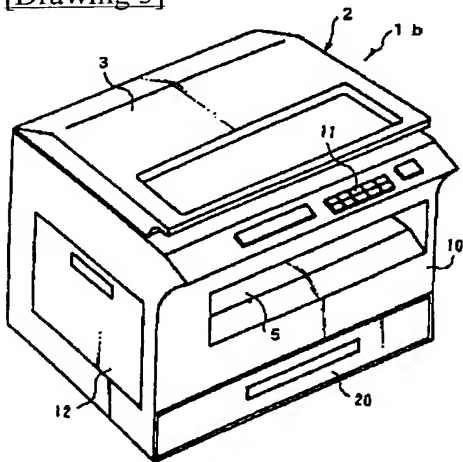
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]